TRANSFORM

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FOR ENVIRONMENT AND SUSTAINABILITY PROFESSIONALS

April 2020
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In pursuit of principles How ethical investors can strengthen engagement

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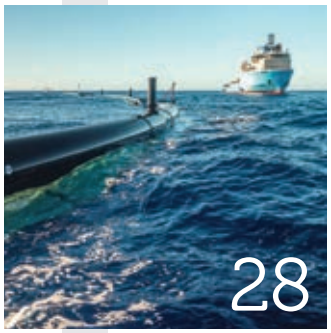

FEATURES

MARTIN BAXTER, IEMA CHIEF POLICY ADVISOR

Budget 2020: Key pledges

Budget 2020 rightly focused on the global outbreak of Covid-19 and the need to shield people and businesses from the worst of the economic shock. The speed at which the virus is spreading, and the range of measures being taken to mitigate its effects, are a real test of community and business resilience in our interconnected world.

The chancellor also unveiled a series of initiatives and spending commitments aimed at boosting investment in natural capital and clean growth. It's a welcome sign that the government is starting to put sustainability at the heart of the economic model, although there's a long way to go. Five key commitments that caught my eye:

- Three new natural capital funds: a 'Nature for Climate Fund'; a 'Nature Recovery Network Fund'; and a 'Natural Environment Impact Fund'
- A doubling of flood defence spending to £5.4bn in the next six years – the right move, given UK climate projections are for warmer, wetter winters and more intense storms
- The plastic packaging tax set at a rate of £200/tonne to boost UK recycling processors
- The removal of the red diesel entitlement from April 2022 for construction plant – a significant incentive for the sector to innovate in the design and use of new clean technologies
- Rebalancing the Climate Change Levy to remove incentives to use gas, and the introduction of a Green Gas Levy to support the use of biomethane.

Other notable initiatives include a carbon capture and storage infrastructure fund, £500m extra for the fast-charging electric vehicle network, and an extra £304m to reduce NO_2 emissions.

Enthusiasm will be tempered by the freeze in fuel duty and the delay in tackling home energy efficiency, which do not reflect the urgency needed to tackle the climate and environmental emergency. Road spending would need to be viewed through the lens of electric vehicles if they are to make sense in a net-zero world – but overall, this is a positive start.

"The chancellor unveiled a series of initiatives aimed at boosting investment in natural capital and clean growth"

IEMA Transforming the world to sustainability

IEMA is the professional body for everyone working in environment and sustainability. We provide resources and tools, research and knowledge sharing along with high quality formal training and qualifications to meet the real-world needs of our members. We believe that together we're positively changing attitudes to sustainability as a progressive force for good. Together we're transforming the world to sustainability.

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TRAVEL

Coronavirus to bankrupt most of world's airlines

The impact of coronavirus and government travel restrictions could bankrupt most of the world's airlines by the end of next month, the CAPA Centre for Aviation has warned. The consultancy firm said many airlines have probably already been driven into technical bankruptcy thanks to diminishing cash reserves as flights are grounded and operate less than half full. It said that demand is drying up in ways that are "completely unprecedented", with no sign of a recovery on the horizon.

"By the end of May 2020, most airlines in the world will be bankrupt," the firm said. "Coordinated government and industry action is needed now if catastrophe is to be avoided. Each nation is adopting the solution that appears best suited to it, right or wrong, without consideration of its neighbours or trading partners."

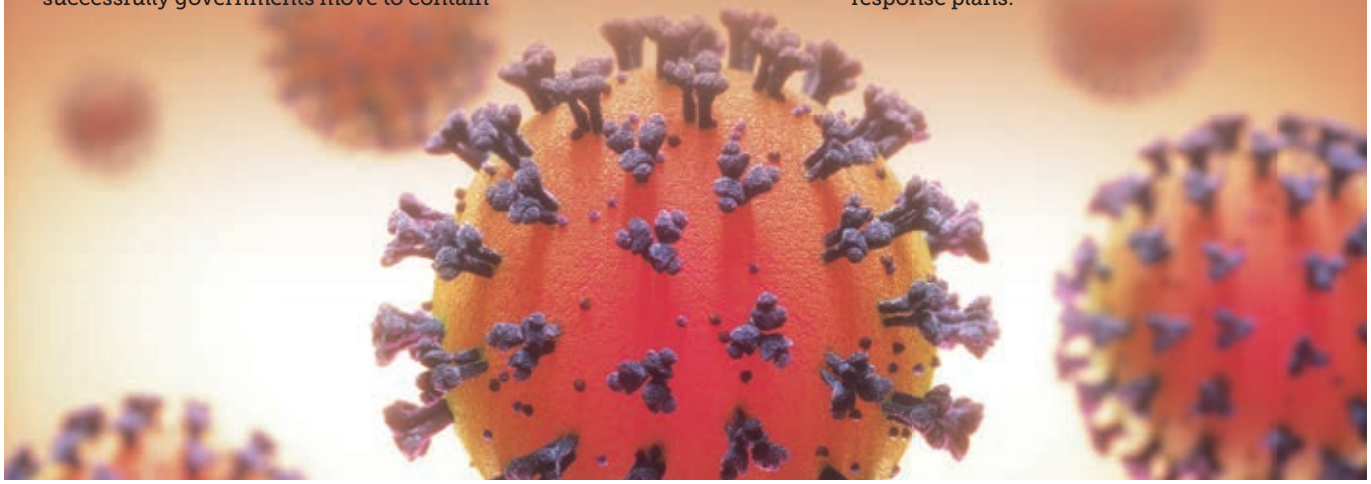
Meanwhile, the International Energy Agency (IEA) expects oil demand to fall by 90,000 barrels a day in 2020 thanks to the deadly disease, and said that an "extraordinary degree of uncertainty" hangs over the potential outcomes.

Stock markets have crashed, and the short-term outlook for the oil market will depend on how quickly and successfully governments move to contain the outbreak. This has led some analysts to believe that this year could see the first fall in global emissions since the financial crisis, but IEA executive director Fatih Birol said this is no reason to cheer.

"There is nothing to celebrate in a likely decline in emissions driven by economic crisis because, in the absence of the right policies and structural measures, this decline will not be sustainable," he added.

BloombergNEF has downgraded its expectations for the solar, battery and electric vehicle markets, and economists believe a global recession is imminent. The British Standards Institute, meanwhile, said that coronavirus has highlighted the fragility of global supply chains, and that business continuity plans must consider all possible natural disasters, including outbreaks.

"As companies are concerned over their supply chains in Asia amid coronavirus, industries must consider the corporate social responsibility risks still rife in China and the region, including child labour, forced labour, and poor working conditions," it said. "Natural disasters, invasive species and diseases on that continent in 2019 caused destruction of infrastructure and agriculture, all underscoring the need for businesses to develop response plans."



IMAGES: GETTY

AIR POLLUTION

Banks spend $2.7trn on fossil fuels in four years

The world's 35 largest private banks spent more than $2.7trn financing the fossil fuel sector in the four years after the Paris Agreement was adopted, the most comprehensive study of its kind has found. The analysis also shows that support for the fossil fuel sector has grown every year since 2015, despite scientists warning that emissions must fall rapidly to avoid the worst of the climate crisis.

Four US banks are particularly culpable, with JPMorgan Chase, Wells Fargo, Citi and Bank of America accounting for 30% of all financing uncovered. JPMorgan Chase has provided $269bn in fossil financing since the Paris Agreement, making it the number one fossil fuel bank – exceeding the spending of second-placed Wells Fargo by a 36% margin.

Alison Kirsch, climate and energy leader researcher at Rainforest Action Network, which published the study, said the findings show "a disturbing picture". "This makes it crystal clear that banks are failing miserably when it comes to responding to the urgency of the climate crisis," she added.

The study also highlights banks' poor performance on human rights via their financing of particular case study projects – from the Line 3 pipeline in North America, which is opposed by indigenous-led protests, to fracking in Argentina's Vaca Muerta basin. These examples highlight the lack of effective human rights policies to prevent institutions from financing highly environmentally damaging projects and the companies behind them.

"As the toll of death and destruction from floods, droughts, fires and storms grows, it is unconscionable and outrageous for banks to be approving new loans and raising capital for the companies that are pushing hardest to increase carbon emissions," Kirsch said.

CLIMATE CHANGE

World 'way off track' on delivering Paris Agreement – UN

The world is not on course to deliver the Paris Agreement, the UN's World Meteorological Organization (WMO) has warned. Its latest multi-agency report confirms that 2015-2019 were the five warmest years on record, with 2010-2019 the hottest decade ever recorded. Last year ended with a global average temperature of 1.1°C above estimated pre-industrial levels.

The findings show global mean sea level reached its highest value on record last year, while ocean heat at a depth of two kilometres was unprecedented. Above-average ice loss, ocean acidification, wildfires, tropical cyclones, heatwaves, droughts and floods were recorded, and greenhouse gases are estimated to have risen by 0.6%. The report also examines weather and climate impacts on human health, food security, migration, ecosystems and marine life.

WMO secretary-general Petteri Taalas said: "Given that greenhouse gas levels continue to increase, the warming will continue. A recent decadal forecast indicates that a new annual global temperature record is likely in the next five years."

IMAGES: ISTOCK/GETTY

FOOD

Climate change and alternative proteins pose risk to meat sector

Meat suppliers could lose billions of dollars due to the increasing financial costs of climate change and growth in the alternative protein market, suggests modelling by the $20trn FAIRR investor network.

The researchers said companies could expect higher electricity costs due to carbon pricing in a 2°C world, more expensive feed thanks to poor crop yields, and increased livestock mortality due to heat stress. They also forecast alternative proteins such as plant-based burgers would command at least 16% of the current meat market by 2050, rising to 62% based on factors such as technology adoption rates, consumer trends and a carbon tax on meat.

Brazilian firm JBS – the largest meat processing company in the world – could lose up to 45% of earnings before interest, taxes, depreciation and amortisation (EBITDA). However, companies, such as Canada's Maple Leaf, which has invested in plant-based proteins, could see EBITDA rise by 77%.

Despite this, only one in 44 of the world's largest meat companies have undertaken their own climate scenario analysis, compared to at least 23% of oil and gas, mining and utilities companies. "It's not an acceptable strategy when it comes to this level of climate risk for the food industry to bury its head in the sand," FAIRR founder Jeremy Coller said.

BUSINESSWATCH

McDonald's to ditch hard plastic toys

McDonald's UK and Ireland will no longer include toys made from non-recycled or non-renewable forms of hard plastic in its Happy Meals from 2021.

The move will eliminate more than 3,000 metric tonnes of non-sustainable plastic, with McDonald's instead offering soft toys and paper-based gifts or books.

UK & Ireland chief marketing officer Gareth Helm said: "We want to use our reach and influence to bring customers with us on the journey towards more sustainable living."

bit.ly/2WgX5b7

O2 offers suppliers cheap renewable energy

O2 suppliers and partners can now buy renewable energy direct from SSE Business Energy at a reduced rate under a new deal agreed between the two firms.The agreement is part of O2's efforts to reduce supply chain emissions, offering cheaper renewables to small and medium enterprises and large businesses of 500 people or more.

SSE chief sustainability officer Rachel McEwen said: "O2 is one of the best examples of demanding, not only climate action, but improved sustainability across their supply chain."

bit.ly/33rnip2

Biffa to quadruple recycling capacity

Biffa, one of the UK's largest waste management companies, will quadruple its plastic recycling capacity and halve its emissions as part of a new 10-year sustainability strategy. The firm said that its proposals will unlock around £1.25bn of investment in Britain's green economy infrastructure by 2030.

"We look forward to reporting on our progress in the coming years as we deliver this plan and the exciting investment opportunities that it presents to our business," said Biffa CEO Michael Topham.

bit.ly/2IScsyT

IMAGES: ISTOCK

ENERGY

UK renewables generation surpasses gas for first time

UK electricity from renewable sources surpassed generation from gas for the first time ever in the third quarter of last year, government figures have revealed.

The data shows that the share of total electricity generated from renewables was 38.9% between July and September last year – the highest proportion ever recorded. This was largely due to additional renewable capacity, which rose 7.2% year-on-year, with more than half the increase coming from offshore wind.

"It represents a hugely significant moment for the country," said Joseph Daniels, founder of developer Project Etopia. "This milestone is one that separates the first and second industrial revolutions from the third that is unfolding right now, with renewable electricity promising to meet all our energy needs."

Government figures show that onshore wind generation rose by 24% in the third quarter of 2019, with offshore wind increasing 43% – the highest increase recorded across these technologies. Total renewable electricity generation rose 16% year-on-year, while liquid biofuels represented 5.8% of petrol and diesel consumed in road transport, up from 4.9% a year earlier.

"The renewables era is well underway, and this signals that we are geared up to meet net zero emission targets," Daniels added.

JOBS

Green jobs could rise 85% in a decade

UK renewable energy and clean technology jobs could grow from 128,954 in 2017/18 to 238,000 by 2030 – an 85% increase – if the right policies are introduced, according to a report from the Association for Renewable Energy and Clean Technology (REA). The North of England would see 46,000 of these jobs.

REA said the government must implement effective policies in the short and long term, including a tax system that promotes renewable energy and clean technology, protects natural capital, and provides a route to market for renewable transport, power and heat technologies.

REA chief executive Dr Nina Skorupska CBE said: "We can see that there is political will; however, this needs to be backed up by policy for the renewable energy and clean technology sector. This report provides the government with that insight, and we are calling on them to deliver this urgently ahead of COP26."

The REA's forecasts come after a disappointing year for industry job growth, which saw an increase of just 1.5% from 2017 figures amid solar PV subsidy cuts. It also follows the National Grid's announcement that the UK energy sector needs 400,000 new workers if it is to meet its target of net-zero emissions by 2050. This will provide employment opportunities across the whole country, particularly in the North of England.

MARTIN BAXTER

IEMA chief policy advisor

Environment Bill update

The Environment Bill passed its second reading in the House of Commons on 26 February and is now at Committee stage, where a cross-party group of MPs, plus the environment minister, go through the Bill line by line and consider amendments, which will be considered by parliament.

To aid this process, a small number of evidence sessions are being held to inform the Committee's scrutiny. As part of the work IEMA – home to the Broadway Initiative – is doing on the Bill, I gave evidence before the Committee in its opening session on 10 March.

Our position is that the Bill includes many governance elements that are needed as the UK leaves the EU, and we are broadly supportive of the measures put forward. However, the Bill could be improved in two ways: first, by enhancing coherence between different governance elements so they are mutually supportive and aligned; second, to complete the governance framework to link national targets and Environmental Improvement Plans with local delivery mechanisms. Providing a top-to-bottom environmental governance framework would create the conditions to mobilise business investment in long-term environmental improvements.

At this point, scope for major change is limited; our best chance of securing improvements to the Bill is through targeted amendments that will genuinely improve long-term outcomes. We've been supporting MPs to table amendments that are consistent with our position, and will continue to advocate for improvements as the Bill enters the Lords later in the year.

We will keep members up to date on the Bill's latest developments and potential implications through webinars and briefings as appropriate.

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PUBLICATIONS

Impact Assessment Outlook Journal programme for 2020

IEMA's EIA Quality Mark (QMark) is a scheme allowing organisations that lead co-ordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have it reviewed. It is voluntary, with organisations free to choose whether they are ready to operate to its seven EIA Commitments: EIA Management; EIA Team Capabilities; EIA Regulatory Compliance; EIA Context & Influence; EIA Content; EIA Presentation; and Improving EIA Practice.

As part of Commitment 7, Improving EIA Practice, QMark members produce a number of case studies and thought pieces on EIA each year. These are accessible online. However, the EIA Steering Group felt this resource was not being highlighted to members, and the *Impact Assessment Outlook Journal* was born. Each journal has a guest editor and is focused on a particular topic or area, bringing together existing and new QMark articles to form an omnibus of short case studies and thought pieces on a single topic.

Following a successful first year, with the publication of four volumes, Volume 5, on Flexibility on EIA, was launched in February. This will be followed with an exciting programme of Volume 6 (Digital Impact Assessment in Practice), Volume 7 (Cumulative Effects Assessments), Volume 8 (Climate and EIA), and Volume 9 (Health and EIA).

Look out for calls for articles in the coming months, with webinars planned by each guest editor to give advance notice of the topic and a call for articles.

RESOURCES

Climate Change and Energy Toolbox

Developed by IEMA's Climate and Energy network, the Climate Change and Energy Toolbox is live and online at **bit.ly/2wZ2xVw**

Guidance is split into six sections: Climate Change Adaptation, Climate Change Policy, Communicating Climate Change, Carbon GHGs and Energy, Mitigating with Adaptation, and Vision and Strategy.

The toolbox was created to help members address climate change, whatever their career stage or the size of the organisation they work in. Some tools are more relevant to specific sectors, such as finance and construction, but there are others with many wide applications.

Feedback is great, with comments being left in the reading room including:

"I found some of the sections particularly interesting – including energetic video explainers from Kate Hayhoe, free pictures, and some short courses from the Sustainability Supply Chain School – mainly aimed at the construction sector, I will find them useful when we put up new buildings and carry out refurbishments. I will also be looking at the Adaptation Capability Framework to see just where our organisational gaps are."

PUBLICATIONS

Digital Environmental Assessment primer

IEMA's Proportionate EIA Strategy has identified digital impact assessment (digital IA) as one of the four key solutions to proportionate assessment, and in 2018 set up a working group of members on the subject.

In March 2020, the working group released *Digital Environmental Assessment: A Primer for Embracing Innovation and Digital Working*. The primer is intended to raise awareness of current digital IA practices, their potential for contributing to better outcomes in IA, and the issues and challenges faced in doing so. An overview of the primer was provided in a webinar in February, a recording of which is available on **www.IEMA.net**

The primer has been developed to generate comment and discussion, upon which future guidance and institutional and regulatory change can be built. To this end, the primer includes 7 Draft Principles for Digital IA, as well as a roadmap of future actions and ambitions for digital IA practice.

The primer is part of a wider campaign to assist members with the digital transition, and is to be followed by Volume 6 of IEMA's Impact Assessment Outlook Journal. This will be on Digital IA in Practice, providing real-world case studies and examples from IEMA members and EIA Quality Mark organisations to supplement the primer.

IEMA is currently collaborating with the digital working group to launch a digital web-based version of Volume 6 to supplement the normal PDF publication.

Finally, we plan to take the primer and Volume 6 journal on tour with a series of member events across the regions. The first two events planned are for Leeds (29 April) and Birmingham (30 April); in light of the unfolding Covid-19 situation, however, these may be postponed or run remotely.

EVENT

Futurebuild: Responding to the Emergency

IEMA joined 27,000 built environment industry influencers and shapers at this year's Futurebuild, which took place from 3-5 March in London.

Futurebuild brings together professionals from across the built environment to share innovation and drive change. The 2020 agenda centred on 'Responding to the Emergency', with debates, presentations and discussions on how built environment professionals and organisations can respond to the climate and environmental emergency.

IEMA's Martin Baxter spoke on the main stage about the need for cross-sector working and common governance for the environment across the UK, as part of a wider session on 'Putting the Planet First', developed by IEMA and the Society for the Environment. Collaboration was a key theme, and most recognise that it is time to take action to reduce the industry's effect on the climate – particularly in light of the Environment Bill, due to receive Royal Assent and come into effect later in 2020.

Futurebuild was a great opportunity for IEMA members who work in the built environment sector to see industry-leading keynotes as part of the three-day knowledge programme, and to connect with innovative brands. IEMA hosted a stand at the event, as well as developing content for the programme, which meant we had great conversations with current and prospective members about the challenges they are facing and how IEMA can tailor its support for this industry.

IEMA began its partnership with Futurebuild in 2019 by contributing to the agenda and attending to support built environment professionals on their journey to sustainability. We have reaffirmed our commitment by attending again in 2020, and hope to continue this partnership in the coming years.

Did you attend Futurebuild this year? If so, get in touch and let us know what you thought: **marketing@iema.net**

This legislative update has been provided by **Cedrec Information Systems**, available at **cedrec.com**

cedrec legislation made simple

NEW REGULATIONS

THE LATEST

■ LEGISLATION ■ GUIDANCE ■ CONSULTATION

21 FEBRUARY 2020

Waste

Decision (EU) 2020/248 sets out technical guidelines for inspections of permitted waste facilities, in accordance with Directive 2006/21/EC, on the management of waste from extractive industries.

cedr.ec/6pq

26 FEBRUARY 2020

Fuel poverty

New legislation is made in accordance with the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act 2019, which aims to eradicate fuel poverty. They clarify some definitions and establish three enhanced heating regimes.

cedr.ec/6pv
cedr.ec/6pu

28 FEBRUARY 2020

Climate change

The Carbon Accounting (Provision for 2018) Regulations 2020 update the carbon accounting system used to monitor compliance with the targets for reducing greenhouse gas emissions.

cedr.ec/6pk

1 MARCH 2020

RoHS

Amendments to Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) came into force on 1 March. They update Annex 3 by extending nine expired exemptions and adding seven new ones.

cedr.ec/6pr

28 FEBRUARY 2020

Pollution reporting

The Environment Agency has updated guidance notes for 'Pollution inventory reporting – incineration activities' to provide further support on how plants using their total particulate matter continuous emissions monitors as indicative monitors can calculate their mass emissions.

cedr.ec/6pp

3 FEBRUARY 2020

Waste

The Environment Agency is consulting on appropriate measures for permitted facilities that take chemical waste, which will replace technical guidance note EPR 5.06: recovery and disposal of hazardous and non-hazardous waste.

cedr.ec/6pm

2 MARCH 2020

Energy

The Department for Business, Energy and Industrial Strategy is seeking views on several proposed changes to the Contracts for Difference scheme to make sure it continues to support low-carbon electricity generation at the lowest possible cost to consumers.

cedr.ec/6pw

4 MARCH 2020

Climate change

The Department for Transport is seeking views on a proposal to introduce a new blend of petrol containing 10% ethanol to the UK market to reduce emissions of greenhouse gases.

cedr.ec/6pi

A burst Wessex Water sewer main polluted a surface water ditch in Stoborough Heath nature reserve

INCOURT

WATER POLLUTION

Wessex Water pays for polluting nature reserve

Wessex Water offered to pay an enforcement undertaking of £35,000 towards environmental improvements at Stoborough Heath nature reserve after a sewer main burst in January 2018, polluting a surface water ditch.

Stoborough Heath is a National Nature Reserve owned and managed by the RSPB and Natural England. It has numerous water-filled ditches that are rich in plant and animal life.

The pollution had a severe impact on aquatic invertebrates over a distance of approximately 100 metres, deteriorating water quality. This was shown from raised levels of ammonia and sewage fungus in the ditch. There was no impact on the main watercourse.

Wessex Water reported the incident and later admitted an unauthorised discharge of sewage to a surface water ditch contrary to the Environmental Permitting (England and Wales) Regulations 2016. It has since spent £50,000 installing a burst detection system along the rising main that caused the pollution.

Janine Maclean of the Environment Agency discussed the enforcement undertaking, commenting that the incident had had a clear and significant impact on Stoborough Heath. "The £35,000 enforcement undertaking has ensured local charities and projects benefit and will be spent on improving the local environment. The burst detection system installed by Wessex Water will ensure any future bursts will be detected earlier and prevent significant damage should a similar incident occur in the future."

An enforcement undertaking is a civil sanction used in less serious cases where it is not in the public interest to prosecute. They can be used to change behaviour, ensure future compliance, put right any environmental harm, benefit those impacted and improve the environment.

The Environment Agency accepted Wessex Water's offer of £25,000 to the RSPB. The money will be spent on ditch and wetland habitat restoration at Lytchett Fields and heathland management at the RSPB's nearby Arne reserve.

In addition, Wessex Water offered £10,000 to Dorset Wildlife Trust towards environmental improvements as part of the Poole Harbour Catchment Partnership Project. It also carried out further actions to benefit an impacted third party, and agreed to pay the Environment Agency's £2,497.30 legal costs.

CASE LAW

Judicial review application of Green Belt decision refused

A claimant applied for review of a local authority's decision to grant planning permission for Green Belt development involving aggregate extraction, subject to imposition of conditions and completion of an agreement under the Town and Country Planning Act 1990.

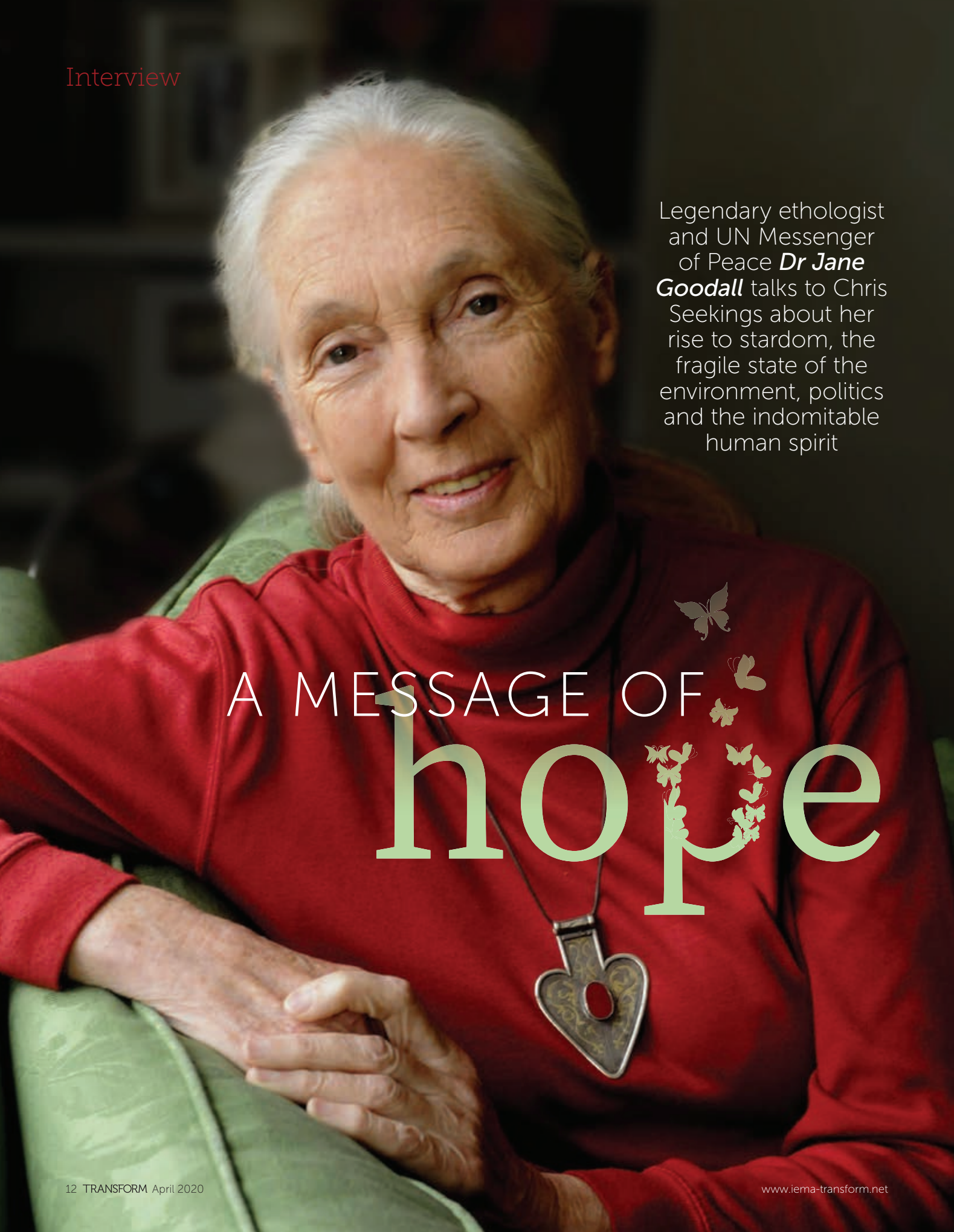
The claimant argued that: in failing to require a further hydrological assessment before granting permission, the authority had breached the Town and Country Planning (Environmental Impact Assessment) Regulations 2011; the authority had failed to satisfy legal requirements in relation to the statutory development plan; the planning officer had approached Green Belt preservation incorrectly, on a mistaken understanding that 'specific localised impacts' could not result in a failure to preserve openness, and the report did not discuss whether proposed screening measures might harm Green Belt openness; the authority's reliance on national air quality levels was unlawful, and it had not imposed adequate planning conditions to address the issue.

The judge concluded it was not necessary for all uncertainty to be resolved to achieve compliances. This case fell within the scope of the authority's entitlement and obligation to exercise judgment on the adequacy of available information, and it was entitled to conclude that it had adequate information. The report referred to the relevant policies, and it could not be argued that the authority's conclusion was unreasonable.

The judge stated that the report approached preservation correctly, taking a broader look at potential impacts rather than merely cataloguing specific impacts. Also, while the report did not question whether the screening measures might have a harmful impact, it plainly addressed the question of openness and concluded there was no material residual impact. There was no material error in its approach, and it was not arguable that the committee would have been materially misled.

The judge decided the evidence indicated that air pollution would be below national objective levels. There was no basis on which to speculate such levels might be damaging. The application was refused.

IMAGES: ISTOCK/SHUTTERSTOCK



A MESSAGE OF hope

Legendary ethologist and UN Messenger of Peace ***Dr Jane Goodall*** talks to Chris Seekings about her rise to stardom, the fragile state of the environment, politics and the indomitable human spirit

Dr Jane Goodall is admired across the world for her groundbreaking research into chimpanzees and tireless pursuit of environmental protection. Her scientific discoveries helped change the way we relate to animals, inspiring millions to protect the natural world.

Her story has been told countless times in books and documentaries, but is well worth telling again. In March 1957, an enthusiastic 23-year-old Dr Goodall travelled by ship for three weeks from England to visit a friend in Kenya. It was the fulfilment of a childhood ambition for Dr Goodall, who had been fascinated by Africa after reading *The Story of Doctor Dolittle*, *The Jungle Book* and *Tarzan of the Apes*. "When I went to the Serengeti it was magic, everything I dreamed Africa would be," she says. "Meeting a rhino, meeting a lion, walking out on the plains – it was really exciting."

She soon found work as a secretary to paleontologist Dr Louis Leakey, who was so impressed by her knowledge of natural history that he asked her to become his chimpanzee researcher. It wasn't long before she would turn our understanding of chimpanzees on its head and be catapulted to international stardom. "It was what I had wanted to do since I was 10, and I had read everything I could about Africa, so I wasn't daunted at all."

Dr Goodall started her career as chimpanzee researcher for paleontologist Dr Louis Leakey

IMAGES: STUART CLARKE/GETTY/PA

Redefining man

She began her observations in 1960 in what is now the Gombe National Park, with no scientific background or training. "My big worry was how I was going to find the chimps," she says. "I remember going along on a boat and looking up at these slopes and forests, thinking 'How on earth am I going to find them in all this?'"

She immersed herself in chimpanzee society, and took the unscientific approach of assigning names to some of the primates, including Frodo, Fifi and David Greybeard, named after his white facial hair.

> "A lot of politicians think, 'I'm not going to risk losing my position to make things better in 100 years'"

One day, when looking up through the canopy with her binoculars, she observed David Greybeard eating meat, something never recorded before. Another day, she saw him use a piece of grass to pull termites out of the ground, then stripping leaves from a twig to use as a tool to forage for more. "Nobody had expected chimpanzees to eat meat, so it was very exciting," she says. "I wasn't surprised to see them using tools, but I knew scientists didn't think it was possible. They even said they must have learnt it from humans that's how snooty they were."

She already had more notable scientific discoveries under her belt than most amass over a career, with Dr Leaky declaring: "We must now redefine man, redefine tool, or accept chimpanzees as human."

Animal warfare

Dr Goodall went on to observe many remarkable personality traits, along with some distressing ones – she was shocked to see chimpanzees killing and eating each other. "The warfare and cannibalism was horrible," she says. "It unfortunately made them more like us than I had thought."

She was also on the receiving end of animal cruelty. One chimpanzee, whose mother was a top-ranking female, could be particularly nasty. "Frodo once dragged me and stamped on me, then came back and did it again. He did it to quite a few people, but me more than anyone else."

She became a star when National Geographic broadcast footage of her work to millions of homes worldwide, and after attending Cambridge University, she became only the eighth person to obtain a PhD without a BA or BSc – a feat even more impressive considering the dominance of men in science.

Conservation and compassion

Dr Goodall's discoveries opened up debates around our relationships with animals that endure to this day. We speak as coronavrius sweeps the world, which was thought to have originated in a Wuhan wet market. "One good thing coming out

Left: Dr Goodall's work for her eponymous institute sees her give talks at events such as Davos

Below: With a captive chimpanzee; her foundation does not endorse the handling of wild chimpanzees

of coronavirus is the Chinese government finally banning the trade of wild animals," she says. "I sent a video that is being played all over China, saying how sorry I am for the Chinese people, and how we've learnt that animals have feelings like us, and it would be wonderful in the future when this is all over if people and animals can live in harmony."

Examining our relationships with animals also leads to questions about culling: "I don't think we should cull if cull equals kill," she says. "On the other hand, if we have messed up the environment so much that a species overpopulates, do you let them overgraze and die of starvation?"

She admits that we might not have the answers yet. "You could perhaps find a way of making them infertile. The thing that makes us different from animals is our intellect and we should be able to do something other than killing."

The Jane Goodall Institute is still involved in conservation, but the interconnectedness of deforestation, biodiversity loss and climate change has broadened her mission. After learning at a conference in 1986 how humans were destroying habitats, she started a schedule that now sees her travel around 300 days a year.

I didn't know what to do, but from that moment on I stopped being in the field and started this crazy travelling."

She discovered that many people living in African forests were also suffering. Crippling poverty, a lack of good health and education facilities, land degradation and ethnic violence were compounding problems. "Too many people were there for the land to support," she says. "We gave them tools to conserve their forest, helping them understand it was for their own future."

Davos deliberations

Climate change was high on the agenda at the World Economic Forum's summit in Davos this year, and Dr Goodall was present for the deliberations. She tells me that, while politicians understand the urgency of the situation, few see an immediate threat. "A lot of them think, 'I'm not going to risk losing my position to make things better in 100 years'."

While in Davos, she attracted controversy with comments on human population growth, with some accusing her of oversimplifying the issue. Her response is simple: "Unlimited economic development on a planet of finite resources where the human population is growing means more meat, which means feeding them billions of animals, and therefore more methane emissions," she says. "We're using natural resources faster than we can replenish them. You can't ignore it."

Population matters

Dr Goodall was ahead of the curve on unsustainable population growth, and first started discussing it in the 70s. "No other organisation would talk about it, as it's too politically sensitive." She believes education is key, explaining how her institute provides scholarships for girls and family planning information in Africa. Around Gombe, it was traditional for women to have eight to 10 children. "Today, many women are saying three to four. We would like it to go down to two, but three to four is much better than eight to 10."

She is a patron of Population Matters, and coined the phrase "voluntary population optimisation", saying that forced population control is an unhelpful answer. She has also been criticised for targeting poorer countries. "But I say that rich families, certainly in the US, have five to six children too, and each one uses about the same resources as 10 poor African children, but people just grab onto anything they can to be aggressive and don't listen to what I am actually saying."

The awakening

Dr Goodall believes Western lifestyles aren't sustainable, and bemoans the "hundreds of stupid little plastic bottles" in hotel rooms and other wastefulness she has come across during her travels around the world. However, she has noticed attitudes changing.

"You can't ignore the fact that the ice is melting, or that storms, floods, droughts and fires are worse."

In 1991, Dr Goodall established Roots & Shoots, a hands-on humanitarian and environmental programme for young people of all ages that is now active in more than 65 countries. "They're out there, rolling up their sleeves, taking action. They're planting trees, working on plastic reduction, recycling and reusing, and urging their parents to change."

Is her globetrotting unsustainable? "I don't have a private jet, and Roots & Shoots will help plant five million trees this year," she explains. "I said to Greta Thunberg: "'You know I fly?' She said, 'Well, you have to'. I wouldn't do it if the message wasn't resonating."

Four reasons to hope

Population growth, corruption, unsustainable lifestyles and poverty are our four biggest challenges, according to Dr Goodall. She cites young people as one reason for hope. "Everywhere I go, there are young people wanting to tell me what they've been doing to make the world better. There is so much enthusiasm, determination, imagination and success in what they do."

Another reason for optimism is "our amazing intellect". "It's peculiar that the most intellectual species is destroying its only home," she says. "Nevertheless, the human brain is coming up with all sorts of innovations and we need governments to subsidise them rather than their buddies in the fossil fuel industry."

The resilience of nature is also grounds for optimism, with Dr Goodall explaining how trees have returned to bare hills in Gombe thanks to her institute's Tacare programme.

"Areas which we have completely destroyed can be given back to nature. Nature will take over, given a chance, and animals on the brink of extinction can be rescued."

Finally, she says it is the "indomitable human spirit" that gives her reason for hope, praising the "people who tackle what seems impossible, won't give up, and so often succeed".

This year is the 60th anniversary of her work at the Gombe National Park and, despite turning 86, she has no plans to slow down.

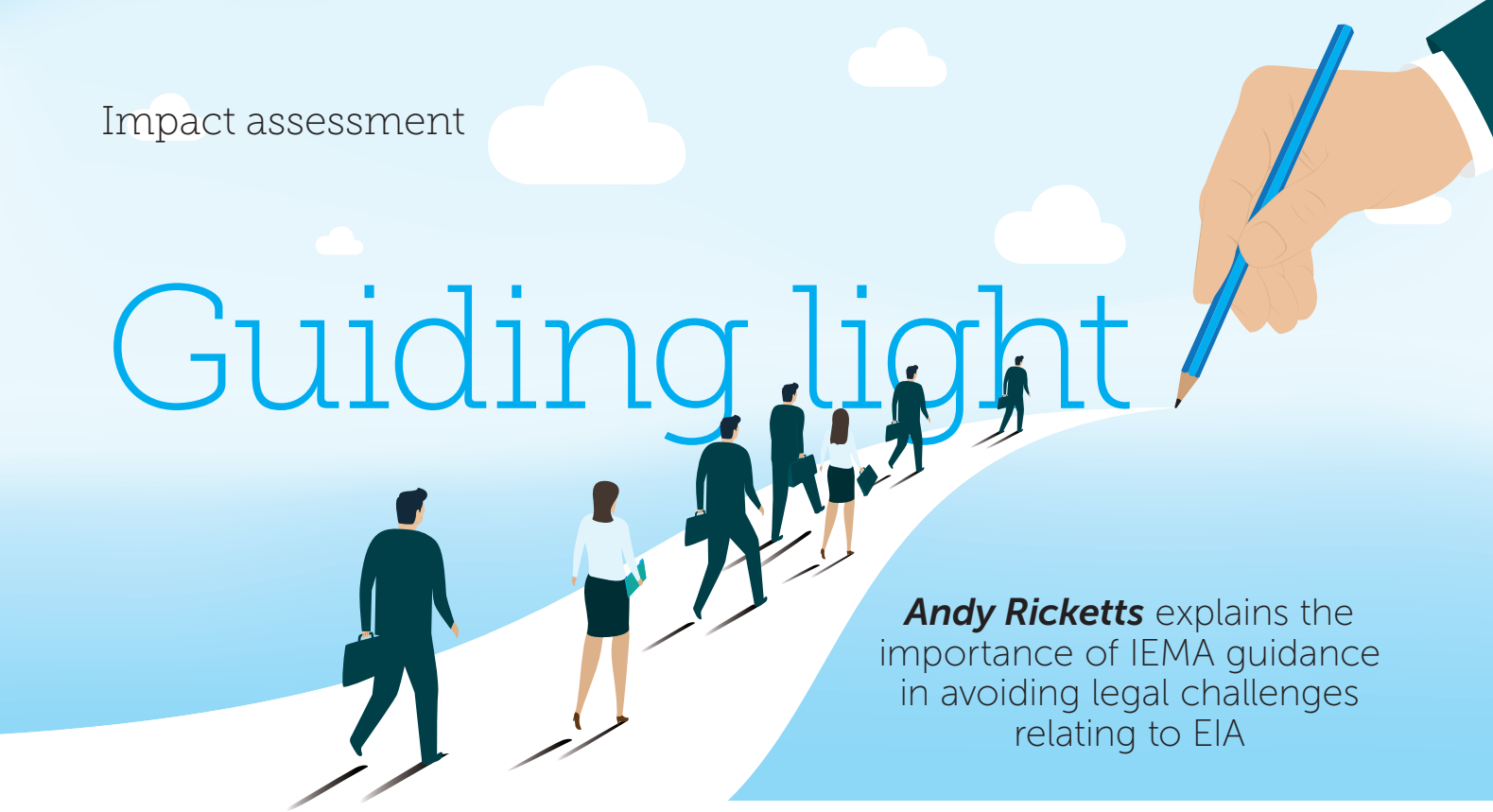
"I can't retire because there is so much to be done – we're in such dark times, and if you don't have hope you don't do anything," she explains.

"This is why I do this crazy schedule. After every lecture, at least one person will say: 'I had given up, but I promise now I will do my bit', so how could I retire?"

She admits it's difficult to remain hopeful, but in a message for IEMA members, says: "There are now millions of people acting and thinking differently. I hope people working in sustainability look at the big picture, and all our efforts together help them see what a difference they're making."

> "It's peculiar that the most intellectual species is destroying its only home"

Guiding light



Andy Ricketts explains the importance of IEMA guidance in avoiding legal challenges relating to EIA

The IEMA Impact Assessment Steering Group has discussed the implications of several legal cases for EIA practice, specifically the use of mitigation in EIA. The current EIA regulations and national guidance support the role of mitigation in determining whether a project comprises EIA development, and define the need for mitigation to be adequately described. IEMA has produced guidance on the use of mitigation and necessary control mechanisms in its *EIA Guide to: Delivering Quality Development* (**bit.ly/2PcYafs**).

If mitigation is identified at any stage of the EIA process, it must be specific and fully evaluated to ensure there is confidence in its effectiveness. There is also a need for clear control measures to ensure that mitigation identified (in some cases at the EIA screening stage only) is successfully implemented to avoid, reduce or offset environmental impacts.

Legal cases

The need for specific, effective mitigation was considered in *Kenyon R v Wakefield Council & Ors*, 18 December 2018. In this case, a decision had been made that the redevelopment of a disused sports complex was not EIA development, due in part to the reliance on future ground investigations and remediation (secured by condition). While the case was dismissed, it (a) strengthened the role of mitigation in determining whether a project comprises EIA development; (b) confirmed the importance of developing evidence (both specific and implementable) to allow a reasoned conclusion on the need for EIA; and (c) showed that without specific, effective mitigation, there could be 'material doubt' and in this scenario any decision should be 'in favour of EIA'.

> "Mitigation must be specific and fully evaluated to ensure there is confidence in its effectiveness"

Squire R v Shropshire Council, 24 May 2019, further considered the application of mitigation. The challenge made was that effects of the odour and dust associated with the proposed disposal of manure from a chicken farming facility had not been sufficiently considered and assessed. The Environmental Statement (ES) supporting the planning application relied on the application of the Environmental Permitting (England and Wales) Regulations 2016 to control and manage environmental impact from the disposal of manure. It was concluded that the ES was legally deficient, and planning permission was quashed.

However, the failure of the ES in this case was that the 'expected residues' – the manure – and its disposal off-site had not been defined as part of the description of development as required under Schedule 4 of the EIA Regulations. If this had been completed, the ES would have duly considered the indirect effects of the project as a whole. This case has brought into question the use of other existing legislative requirements as mitigation, which is promoted by IEMA guidance. They should still be used; however, their application to avoid, reduce or offset environmental impacts requires careful evaluation and the role and function of the legislation (and regulators) needs to be clearly defined alongside the control mechanisms for its effective implementation.

The application of mitigation in EIA is likely to continue to be a topic for legal debate, but the pitfalls and associated delays and costs can be avoided through the use of IEMA guidance. Application of the guidance can also assist with robustly reducing the scope or need for EIA.

ANDY RICKETTS is head of EIA at Turley

The Coronavirus Diaries

On BBC Radio 4's *Today* programme in March, one presenter suggested we look at the impact of coronavirus in a "positive way" in terms of climate change. As the virus sweeps the globe, it is hard to see the bright side – but they did have a point.

Measures to contain the outbreak in China, for example, wiped out at least quarter of the country's CO_2 emissions during a four-week period in January-February, according to analysis by Carbon Brief, and the virus "could have cut global emissions by 200m tonnes of CO_2 to date". Flight suspensions and cancellations cut global CO_2 emissions from passenger flights by around 11% (or three million tonnes of CO_2) in one two-week period. Some are predicting we could see the first global emissions fall since the 2008-09 financial crisis.

Remember what happened after that, though? The Chinese government launched a construction-heavy stimulus programme and emissions rocketed. *Bloomberg* has reported that, in some cities, local factories have been given power consumption targets to show 'business as usual'; machinery is running "even as their plants remain empty".

Let's keep the glass half full, though. Reaction to the crisis has demonstrated what governments can achieve in a short space of time – and when guided by scientific advisors. Imagine if they took the same approach to climate change? As Jon Erickson, an ecological economist at the University of Vermont's Gund Institute, put it in an interview with *dw.com*: "If we truly treat climate as an emergency, as we are treating this pandemic as an emergency, we have to have a similar level of international coordination."

On 10 March, a UN study showed that the world is "way off track meeting either the 1.5°C or 2°C targets". Air pollution from burning fossil fuels is responsible for more than four million premature deaths a year. Could coronavirus show politicians what can be achieved, and give them the appetite to act? Businesses are certainly responding: staff are working from home; meetings have taken place virtually; reassurances have been made over food security.

"IT'LL BE INTERESTING TO SEE WHETHER SOME NEW HABITS ARE FORMED AND HOW THEY PERSIST"

As one consultant wrote on LinkedIn: "It'll be interesting to see whether this encourages the sorts of change that we might want to make anyway to reduce our contribution to climate change. It'll also be interesting to see whether some new habits are formed and how they persist into the future."

Prior to the outbreak, some companies had already adjusted travel policies to reduce the number of flights taken by staff. At PR company Greenhouse, for example, employees are offered extra paid travel if they choose slower, low-carbon land or sea options over flying, as part of the Climate Perks Scheme from non-profit Possible. Such a scheme has cost (as well as practical and personal) implications, and not all of us can hitch rides across the Atlantic on racing boats, like Greta Thunberg. However, this outbreak is forcing us to rethink our plans and lifestyles.

People shouldn't be pushed too far, too fast, though, according to Guy Newey, strategy and performance director at government-funded research group Energy Systems Catapult. One of the dangers, he said on the *Today* programme, is thinking that the "dramatic way" lifestyles have changed in the face of coronavirus are a template for our future dealing with climate change. "I don't think that's necessarily what people want or would accept," he said. "You have to take people on this journey."

Still, there's nothing wrong with picking more people up. Some 16% of Britons are cutting back on flying, according to research by Swiss bank UBS. Now – as we look for Easter holidays closer to home and discover that virtual meetings can be productive – is the perfect time to encourage these habits to stick. Coronavirus has forced us to cope, so why can't we continue to do so in the name of climate change?

DAVID BURROWS is a freelance writer and researcher.

IMAGES: SHUTTERSTOCK/ISTOCK

Environmental DNA analysis provides a more efficient way to monitor wildlife presence than traditional surveying methods – making it easier for developers to protect and boost biodiversity, says ***Catherine Early***

TRACKING THE TRACES

Biodiversity has typically been a tick-box exercise for business, if it is given any thought at all – but that is starting to change. Internationally, the issue has come to prominence as scientists warn that one million species are facing extinction, while the World Economic Forum this year listed biodiversity loss and ecosystem collapse as a top risk to business.

In the UK, the Environment Bill is bringing in requirements for developers to prove a net gain of biodiversity on development sites, while the new payment system for farmers will be based on environmental improvements – including to wildlife habitats. Landowners such as water companies now have a legal responsibility to restrict the spread of invasive species such as zebra mussels, which clog pipes and cost millions to remove.

As regulation places more obligations on the private sector to tackle biodiversity, there has long been a lack of precise data

IMAGES: SHUTTERSTOCK/ CATHERINE EARLY

for monitoring it. The difficulty of locating and identifying species in an ecosystem, and the time and expense of collecting the data, means that biodiversity knowledge can be patchy at best.

However, new technology that promises to change this is being developed. Analysis of environmental DNA (eDNA) – unique animal cells left in the environment through shedding, sweating, urinating and salivating – can provide the same or better information than traditional biodiversity surveying, at a fraction of the time and cost.

Quick and easy

eDNA is collected from water samples using a simple kit, and is far quicker than traditional methods. A fish survey in Sweden by research institute Aquabiota, using the conventional method of catching them in nets, took around 200 hours in the field; a survey of the same area using eDNA took around 15 hours, including travel. It also found 24 species of fish, whereas net fishing found only 16.

Another eDNA testing benefit is that it is very simple – anyone can collect the samples, which vastly increases the number of places that can be monitored. People living in remote areas, or workers already on a site, can easily send the samples off to specialist labs for analysis.

eDNA can remain in water for an average of 48 hours after an animal has moved on, meaning that eDNA testing can pick up all species that have been present during a particular timescale, rather than only those that were there at a brief moment in time. Though some studies have shown that it can persist in particular environments for as much as 300 hours, it does not linger long enough for long-gone species to be detected.

Single-species monitoring

eDNA can be used to monitor biodiversity in two ways – single-species monitoring and metabarcoding. Single-species testing tells you only whether a particular species is present or not. In the UK, it has gained ground in the surveying of development sites for great crested newts. The species, infamous in ecology and development circles, is the UK's most heavily protected amphibian. Their habitats cannot be disturbed or destroyed without permission, and developers are required to survey potential breeding ponds to establish if newts are present on development sites.

Natural England approved the use of eDNA to survey for great crested newts in 2014. Testing water samples for newt eDNA has a 99.3% detection efficiency, significantly better than the more conventional methods of bottle trapping (76%), torch surveys (74%) and egg searches (44%).

Since then, eDNA surveying has led to a "transformation" in great crested newt conservation, according to Jeremy Biggs, director of campaign group the Freshwater Habitats Trust. Previously, every great crested newt habitat had to be protected, which resulted in some "very silly projects, such as ponds in the middle of an industrial estate, which were never going to be habitats," he says.

eDNA monitoring has led to a new way of conserving great crested newts while allowing developments to take place. Under district licensing, currently being rolled out across the country by Natural England, developers pay to join a district-level licensing scheme, removing the need for them to carry out surveys on development sites. Compensatory habitat is created in nearby locations where it has a better chance of being effective than in the middle of the new development.

"Because we can now check where the newts are much more easily, we're taking the money from development and putting it into habitat where it will stay in good condition for the long term, and we can check more quickly whether it's working or not," Biggs says.

> "eDNA is collected from water samples using a simple kit, and is far quicker than traditional methods"

Metabarcoding analysis

Metabarcoding is a second type of eDNA analysis that has emerged more recently; it is now a rapidly growing field of research. By sequencing the DNA from all species present, metabarcoding enables the identification of multiple species from a single water sample. Comparison with traditional findings from conventional surveys has again been favourable.

Nature Metrics, a specialist in analysis of eDNA, has been testing a site near Sunbury-on-Thames over 12 months. The samples have revealed a total of 19 species, including lamprey and European bullhead, both protected species. The Environment Agency has surveyed the same site over 14 years using electrofishing – an expensive method under which fish are caught after being stunned with electric currents. The agency's tests identified many of the same species, but far less consistently and at much higher expense.

There are a few drawbacks. Metabarcoding of eDNA tells you what species are present, but cannot quantify the population. However, Biggs points out that some species are so rare or hard to survey using conventional methods that it's hugely beneficial that eDNA can tell you they are there at all. "It's such powerful information that people will stop caring that you can't count them all," he says.

Informed decisions

Dr Kat Bruce, co-founder and chief executive of Nature Metrics, says: "Every single method we use for measuring biodiversity has its own set of biases and limitations; the

People living in remote areas, or workers on a site, can easily send eDNA samples off to specialist labs for analysis

eDNA testing can pick up all species that have been present during a particular timescale

"eDNA metabarcoding could appeal to businesses that want to go above and beyond and be leaders in biodiversity protection"

important thing is to understand what these are so you can make an informed decision about what to use in a certain context."

For this reason, those wishing to use eDNA will still need the advice of specialist ecologists who understand the environment being sampled and the species being targeted, to make sure the samples are collected in the right place at the right time to provide the information sought, she adds.

eDNA cannot be used for all species – for example, hard-bodied invertebrates with exoskeletons leave less eDNA than softer species. "A lot of water quality monitoring under the Water Framework Directive is based on benthic macroinvertebrate surveys," explains Bruce. "There's been a lot of interest in whether you can get the same data from eDNA analysis of water samples as you can from netting, but that is challenging, because a lot of these types of species don't leave DNA. At the moment, it doesn't look like eDNA sampling is going to replace conventional monitoring for invertebrates."

The applications of eDNA metabarcoding are varied. Nature Metrics is already working with some infrastructure developers to generate baseline data for environmental impact assessments (EIA), which can then be compared with future data to assess the impact of a development on biodiversity.

Samples of insects or soil can also be sequenced using metabarcoding, enabling identification of species that have typically been too small and difficult to identify, Bruce says. "You can get much better information about how an ecosystem is changing in a general sense and whether it's becoming more or less healthy. You need a lot of baseline data to build the foundations to use the technology in that way, but if the will is there, it has a lot of potential," she says.

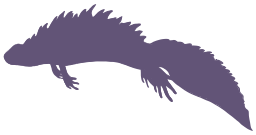
eDNA metabarcoding could appeal to businesses that want to go above and beyond compliance and be leaders in biodiversity protection, she says. "If they really want to understand what's happening in the habitats they're impacting and tell that story, then this will give them the information to do that in a better way."

Precise and efficient

eDNA technology could revolutionise biodiversity surveys

Testing water samples for great crested newt eDNA has a 99.3% detection efficiency

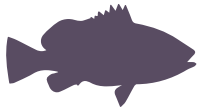
99.3%



48h

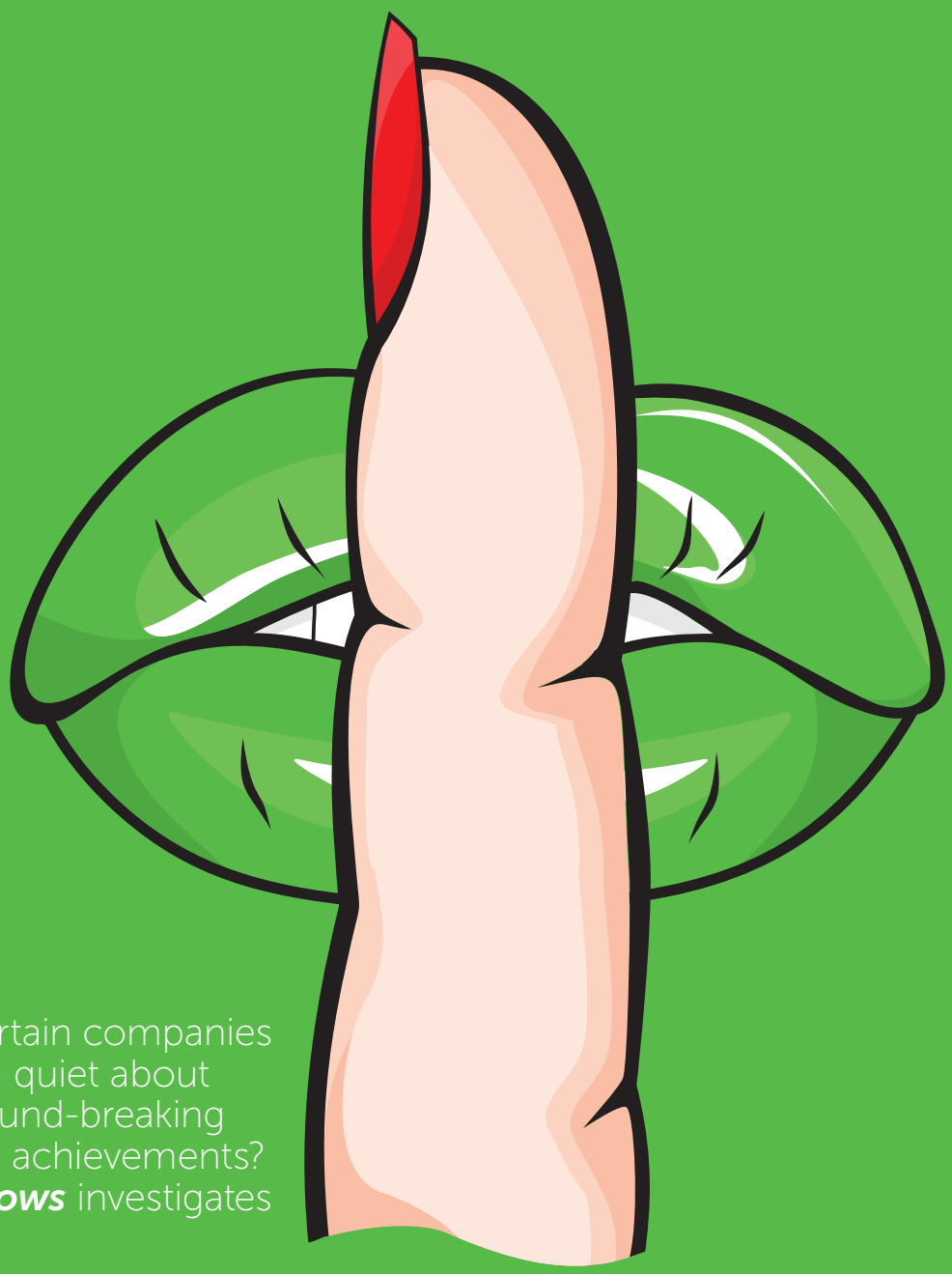
eDNA can remain in water for an average of 48 hours after an animal has moved on

15h



A fish survey in Sweden took 200 hours using conventional methods; using eDNA, it took just 15 hours

CATHERINE EARLY is a freelance journalist



Why are certain companies keeping quiet about their ground-breaking sustainable achievements? ***David Burrows*** investigates

Under wraps

IMAGES: SHUTTERSTOCK

Every manufacturing plant Toyota runs in Europe is zero waste-to-landfill – and that's been the case for well over a decade. In fact, since 2018 the sites have also been 'zero waste-to-incineration'. Look for this achievement in the press and you'll find that, much like the company's non-recyclable waste, there is almost nothing out there. Why would a business keep shtum about its sustainability, especially when others are so keen to shout about theirs (and profit from it)?

Toyota isn't the only brand keeping quiet: there are Portuguese wineries silently shifting from conventional to organic production and clothing companies apparently outdoing the likes of sustainable fashion pin-up Patagonia. This 'secret sustainability', as *The Guardian* recently called it, could be explained by companies not wanting to give away a competitive advantage. However, it could be holding up progress. If a car manufacturer can make zero waste commercially viable, or a wine producer can cut its chemical applications and boost harvests by 18%, surely others would want to take a closer look? There could be many more private innovations going on that are even more revolutionary, suggests Libby Peake, senior policy advisor at think tank Green Alliance. "It's a shame not to share them."

Have companies gone shy on sustainability – and what are the reasons for their reticence?

"Companies that do step into the spotlight create expectations – and consumers are more demanding than ever"

A crowded conversation

There is little to suggest that businesses have reined in their communications; in fact, the volume of press releases and social media activity has gone up. Editors are keener than ever to consider pitches on everything from carbon labelling and chemical pollution to 'purpose' and packaging. David Attenborough, Greta Thunberg and Extinction Rebellion have helped: the public has taken note of the climate emergency and plastic pollution, and brands are falling over themselves to give them (and the press) what they want. Those who shout loudest tend to be heard.

Communications agencies are seeing an uptick in clients who want to talk about plastic – a subject the media is particularly receptive to. This frustrates some. "Just because it has the greatest awareness among consumers, doesn't mean that it is the single most important issue," says Greenhouse PR founder Anna Guyer. "Some publications have a long way to go when it comes to realising that plastic waste isn't the only pressing climate change issue."

Still, consider what a 'plastic-free' commitment has done for Iceland's standing as a 'sustainable supermarket' and it's easy to see why there is a temptation to say something rather than nothing. The rollout of 'plastic policies', as well as 'net zero' commitments, has come thick and fast – but some of these are not worth the recycled paper they are written on (Shell and BP's recent offsetting plans, or the companies that announced packaging pledges 18 months ago but have failed to report on progress as promised).

Filtering the greenwash

Maybe the issue is quantity over quality? Are we facing a world where the innovation that has seen one anonymous factory produce a pair of jeans using a single litre of water – as opposed to the 346 litres required for a pair of Levis – flies under the radar, while swapping from plastic wrap to cardboard wins drinks companies headlines? "The issue is that we are too quick to communicate half-baked initiatives, not that we're hiding the gems," explains Ben Hayman, managing partner at brand purpose agency Given London.

Sorting the gems from the greenwash isn't easy, but consumers are wary of some of the sustainability stories being told. Only 34% of consumers trust most of the brands they use, according to Edelman's global survey of 16,000 people last year. Indeed, trust in big corporations has been eroded after their years of hiding supply chain impacts and explaining away resulting scandals. But some feel that companies are more transparent than they have ever been. "The world has changed," says Dexter Galvin, director of corporations and supply chains at the Carbon Disclosure Project. "Companies are disclosing their impacts in a way I've never seen before."

Others are also witnessing improvements. Jo Raven is engagement manager at Fairr, a global network of investors focused on the risks and opportunities caused by intensive livestock production. "We've seen a huge change in the past 18 months. There is real recognition of the environmental impacts of food, in particular protein. Disclosure is improving from a livestock sector not traditionally under pressure from investors." There is also focus on divestment from fossil fuels, plus renewed interest in deforestation.

Inconvenient truths

But as pressure increases, companies are forced to act. The challenge then is ensuring good practice isn't overstated. Greenwashing is sometimes easy to spot, but it is more often open to debate. "Greenwashing is anything people choose it to be," explains Professor Steve Evans, director of research at the University of Cambridge's Centre for Industrial Sustainability. "It can be any unintended consequence."

For brands, this becomes a bit like trying to whack moles: suppress one environmental impact and you expose another. "One sustainable 'solution' may contradict another," explains Katrina Russell, project director at cultural insight agency Sign Salad.

Take the restaurant brand that wants to switch to free-range eggs, supporting higher welfare but increasing the carbon footprint of each egg, or the clothing company that moves its manufacturing to the UK, resulting in factories being closed down on the other side of the world. These are what Nick Dormon, founder of brand and design consultancy Echo, refers to as "inconvenient truths", and they are just some of a number of challenges facing those who are trying to communicate sustainable business practice. If brands haven't found a good way to communicate their story, they tend to keep quiet.

Companies that do step into the spotlight also create expectations – and consumers are more demanding than ever. Shout about the 20% recycled plastic used in a takeaway box and the first question people ask is: why isn't it 100%? Getting to 20% can be "quite an achievement", says Dormon, but the investment, expertise, supply chain alterations and time needed to hit 100% isn't easy to communicate to consumers looking for a quick fix.

Why aren't they shouting about it?

The green achievements you might have missed

0

Every Toyota manufacturing plant in Europe is zero waste-to-landfill

18%

One wine producer has cut chemical use and boosted harvests by 18%

1

An anonymous factory can produce jeans using a single litre of water

The long game

Change doesn't happen overnight, which leaves companies with a conundrum: do they make adjustments and keep their failures and successes out of the public eye, or do they bring everyone along for the ride? There are pros and cons to both approaches. Hiding sustainability creates "credible differentiation" from greenwashing, notes Sign Salad's Russell, but brands don't need to shout to be heard. Quietness and discretion are now being used to signal luxury and confidence to consumers. These "authentic experimenters" present themselves as honest but imperfect, says Russell. "It's a 'we're working on it, but we're not there yet' story, rather than a finished, polished declaration of success."

Whether sustainable products can be luxurious is a moot point. One of the reasons those vineyards keep their organic accreditation to themselves is because "we've managed to educate customers that organic wine is either terrible or expensive", says Professor Evans. "They don't feel that it's their job to 'untrain' people." The worry is that if such stories go untold, others won't see the benefits that sustainable approaches can bring. These companies are also missing out on taking a leadership position, not to mention additional profits ("there's money to be made", says Dormon, citing the fact that Unilever's sustainable living brands are growing 69% faster than the rest of its business).

> "Quietness and discretion are now being used to signal luxury and confidence to consumers."

Sustainability is a long game and, according to Professor Evans, "we aren't good at rewarding momentum building". Should critics of businesses trying to move in the right direction back off? There is certainly a balance to be struck between praising progress and pushing performance: get it wrong and companies clam up; get it right and improvements stretch industry-wide. This can have huge benefits. "The best manufacturers have improved energy efficiency by 50% over 10 years, but the rest only achieved 10 to 15%," says Green Alliance's Peake. "Sharing best practice could go some way to raising the bar across the board."

DAVID BURROWS is a freelance journalist

A green future?

Neil Howe casts his eye over environmental regulations and strategies in a post-Brexit UK

The calendar of environmental policy and regulation is starting to take shape for 2020. Current focus is on the legislation needed to secure environmental protections, with Bills on agriculture, trade and fisheries – but it's the Environment Bill that sets out how our standards will look post-Brexit.

Reintroduction of the Bill

The Environment Bill is the main driver of the 25-Year Environment Plan and sets a domestic framework for environmental governance.

Legislation has already been laid to reach net-zero carbon by 2050, and the UK is hosting the 26th UN Climate Change Conference of the Parties in November. However, there is concern about how far the government will diverge from EU standards, and whether protections will be weakened. The Bill does not specifically rule out non-regression of environmental law, but does include a clause that future UK governments introducing new legislation must state whether it will reduce existing environmental protection. Significant developments in other countries' environmental legislation must also be considered through an environmental improvement plan and environmental target-setting process, both of which will be enshrined in law.

Resources and waste

The Resources and Waste Strategy will shape waste policy for 2020. Several consultations were carried out last year, which included plans to: set resource efficiency standards for products and push for recycling, re-use and repair; make packaging producers pay the full cost of dealing with their waste; extend producer responsibility to cover household waste recovery costs; and introduce a deposit return scheme for cans and bottles.

The headline-grabber is the plan to charge extra for single-use plastic items, and some fears of deregulation are being eased by the introduction of powers to stop polluting plastic waste being exported to developing countries.

There are also plans to tackle waste crime, which costs the UK economy around £600m every year. An electronic waste tracking system will be established, and legislation introduced to clarify the legal requirement for those transporting, managing and describing waste to be 'technically competent'.

Air quality

Defra aims to build on its Clean Air Strategy via the Environment Bill. Legally binding targets will be set for fine particulate matter, the air quality management framework will be strengthened and simplified, more powers will be given to local authorities, and the responsibility for addressing air pollution will be shared across local government structures and relevant public bodies. Evidence of this emerged in February with details on the phasing out of coal and wet wood used in household burners – the single largest contributor of fine particulate matter emissions.

The Bill also tightens laws on manufacturers, forcing them to recall vehicles that do not meet relevant environmental standards.

> "The Environment Bill sets out how our standards will look post-Brexit"

Enforcement

Although the Environment Bill is widely considered to contain positive steps, the issue of how everything will be enforced is the subject of much debate.

The Bill includes provisions for a new independent Office for Environmental Protection, which will scrutinise environmental policy and law, investigate complaints and enforce action against public authorities that are failing to uphold environmental standards. Climate change legislation, including the commitment to reach net-zero emissions by 2050, will fall under its remit. While this 'watchdog' can take companies to tribunals and provide an impartial view on the enforcement of environmental law, opponents have said it lacks the teeth to hold the government to account.

Companies managing their waste need to be aware of new powers for regulators to make charging schemes to recover costs. With a huge focus already on waste crime, these could fund regulators in tracing fly-tipping, unlicensed waste companies and poorly classified waste.

The prospect of more robust duty of care enforcement should be a major concern for the whole of the waste sector in 2020.

NEIL HOWE is senior legal author and consultant at Cedrec Information Systems.

IMAGE: ISTOCK

The rules of engagement

Quintin Rayer offers tips for ethical investors that want to strengthen their engagement with companies

Ethical and sustainable investors focus on issues such as environmental, social and governance (ESG) factors, UN Sustainable Development Goals and traditional areas such as alcohol, tobacco, gambling, pornography, armaments, nuclear power, animal testing and intensive farming.

Many investors are also acutely aware of the increasing likelihood of extreme weather events and other challenges associated with global warming. Despite Paris Agreement targets to hold global average temperature increases to less than 2°C above pre-industrial levels, current warming appears to be on track for at least 3°C by 2100.

Many fund managers engage with companies to end harmful practices. Yet engagement is opaque, and fund selectors struggle to assess managers' commitment and progress made.

Engaging for a 'green rinse'?

Concerns that sector exclusions can lead to under-performance may motivate less categorical policies such as engagement, underweighting firms with harmful activities or overweighting those that support solutions. It is not obvious that ethical investments should underperform. Ethical strategies may offer reduced risk and competitive advantage, with several studies supporting this conclusion.

Many ethical investors state that they use engagement to influence companies. While position size and holding period help, it is tough to appraise the quality and commitment to engagement work. Discussions with NGOs and others suggest

IMAGES: ISTOCK/GETTY

this vital area is significantly under-assessed. A stronger focus on engagement is essential, especially for it to be a key tool for addressing issues such as climate change.

Difficulties appraising engagement quality can lead to fears of greenwashing – engagement could be a 'cosy chat' with management, with no real prospect of company action. Fund managers may fear to confront boards in case they damage relationships, reducing access to corporate information.

Strengthening engagement

Many mutual funds outsource voting to proxy firms, passively following their guidance more than 95% of the time. This appears weak, particularly if managers are not even formulating their own views. Funds should be defining in-house voting policies. Stronger approaches might involve proposals linking director remuneration to issues of concern or resolutions that formally instruct directors to address them.

Engagement should involve more than voting; a two-way dialogue is required. Ethical investors should discuss legitimising standards and their expectations, and follow up with boards. They may need to identify issues and develop the expertise to actively educate boards on emerging problems.

Fund managers need non-confrontational ways to raise contentious issues without damaging relationships with boards. Identifying and sharing best practice may be one approach. Sector benchmarking might be another, with robust assessments shared anonymously or published as circumstance permits.

> "Stronger approaches might involve proposals linking director remuneration to issues of concern"

Engagement escalator

When overtures do not produce results, managers should follow an escalation pathway, involving progressively more assertive engagement practices. Follow up initial meetings with collaborations with other investors, public statement of concerns, voting against boards or, ultimately, divestment.

Some fund managers may see voting against boards as evidence of engagement failure. However, boards should not expect to be able to take institutional shareholder support for granted. Like divestment, engagement is likely to be more effective when backed by the credible threat that you are prepared to oppose board resolutions. Discussions with boards before and after voting could help place voting decisions within a more constructive context.

For impactful engagement, fund managers will need to allocate significant resources to researching issues thoroughly. They will be able to present problems to boards, together with possible solutions. If boards find that engagement discussions with investors become a valuable source of information on business challenges, perhaps tricky conversations can be used to strengthen, rather than damage, relationships.

Sound investments

How to exert positive pressure

Be prepared to escalate engagement if initial overtures do not produce results

Appraise your organisation's quality of, and commitment to, engagement

Funds should be defining their own in-house voting policies

Tangible results

Fund managers carrying out engagement need to ensure it has an impact. Tangible results are necessary, particularly as engagement quality is hard to assess.

A global climate crisis is emerging, with fossil divestment or engagement proposed to help promote the transition to a low-carbon economy. If engagement quality is opaque and results appear inadequate, investors will drop engagement as a tool in this crucial area. Fund managers need to ensure that engagement produces meaningful outcomes.

However, engagement and divestment need not be competing opposites. Divestment or engagement need not be justified as if everyone followed the same approach by adopting a Kantian imperative. Individual investors are not the entire market, and a credible divestment threat is an important part of engagement. Those investors who divest and clearly say why give strength to those continuing to engage.

To read a version of this article with references, please visit bit.ly/2QhNEnZ

DR QUINTIN RAYER is a Chartered Wealth Manager and head of research and ethical investing at P1 Investment Management.

The brainchild of a Dutch teenager, The Ocean Cleanup aims to clear our seas and rivers of waste through engineering. ***Kathryn Manning*** investigates

A great catch

The story of Boyan Slat, and his idea for capturing the plastic waste in our oceans, has captured the world's imagination.

At the age of 16, the Dutch inventor and entrepreneur was diving with his family in Greece and was shocked that there were more plastic bags in the sea than fish. On returning home, he decided to dedicate a school science project to finding solutions to the ocean waste problem.

The first challenge was the Great Pacific garbage patch – a swirling mass of debris that is more than twice the size of France, at 1.6 million square kilometres in size. "I'd always been interested in engineering, and then came up with a concept of how I thought we could feasibly clean the ocean garbage patches," Slat said. And so the idea for The Ocean Cleanup was born.

The system he developed consists of a long buoyancy barrier that sits at the surface of the water, and a 'skirt' that hangs beneath it to collect debris. The skirt prevents debris from escaping underneath and leads it into a retention system, but as a passive system, it does not capture or affect wildlife.

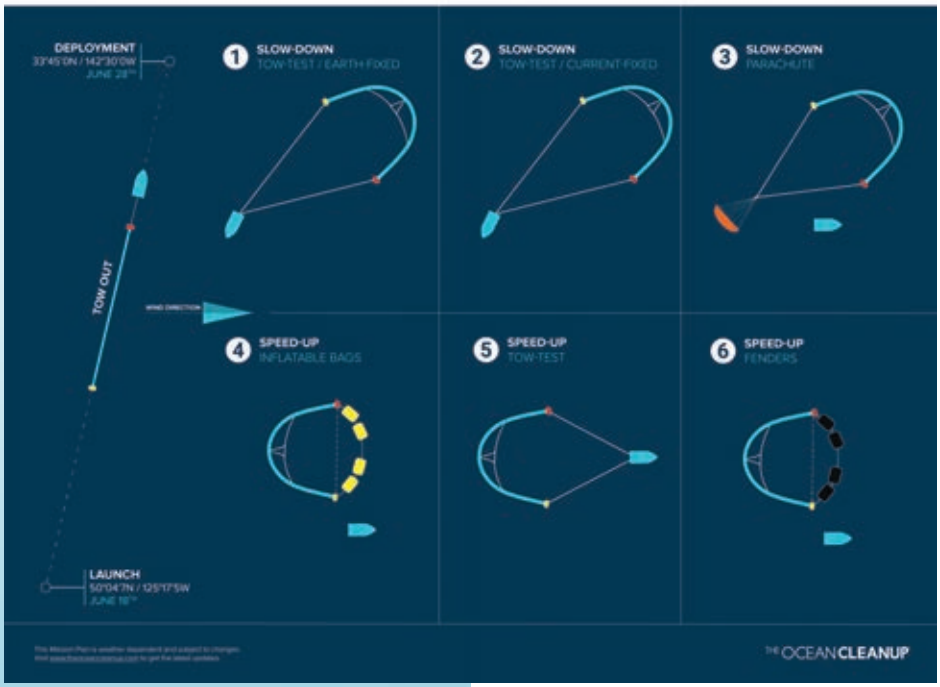
The following year, in Delft, while studying aerospace engineering, Slat presented a TEDx Talk describing his new creation. At just age 18, he decided to drop out from university and devote all his time to the non-profit entity The Ocean Cleanup. His TEDx Talk went viral after being shared by several news outlets, enabling him to raise funds and assemble a team of 100 people to study the concept's feasibility.

Fishing for success

In just two short years, Slat had both conceived and put it into action his plans for Ocean Cleanup. At this time, the world was only just waking up to the damage that the millions of tons of plastic entering our oceans each year was doing to wildlife, ecosystems and even our own food chain. Most plastic comes from polluting rivers, and much ends up in huge ocean garbage patches, of which the Great Pacific is the largest.

Now, however, there was an operation with a clear plan. And with US$2.2m raised through Slat's crowdfunding campaign, and $31.5m raised in donations from entrepreneurs in `Europe and Silicon Valley, the team's optimism was clearly contagious.

Joost Dubois, head of communications at The Ocean Cleanup, outlines the goal: "The mission is to develop technologies to rid the world's oceans of plastic, and to have removed 90% of all ocean plastics from the concentration zones in the five gyres by 2040. In order to reach that goal, we calculated early on that we also needed



The buoyancy barrier leads ocean plastic into a retention system, without capturing wildlife

The organisation's system traps debris using a 'skirt' hanging from a buoyancy barrier

"Our mission is to have removed 90% of all ocean plastics from the concentration zones in the five gyres by 2040"

to stop the influx, since the gyres are growing at an exponential rate."

As the majority of plastic in the ocean comes from polluting rivers, the next step was a solution to catch the waste before it reached the ocean. "We developed the Interceptor technology, which we presented to the world on 26 October 2019, after more than four years of quiet development," explains Dubois. "This occurred weeks after we confirmed the concept of our ocean approach to be working, and right before we brought the first catch of ocean plastic back to shore in December."

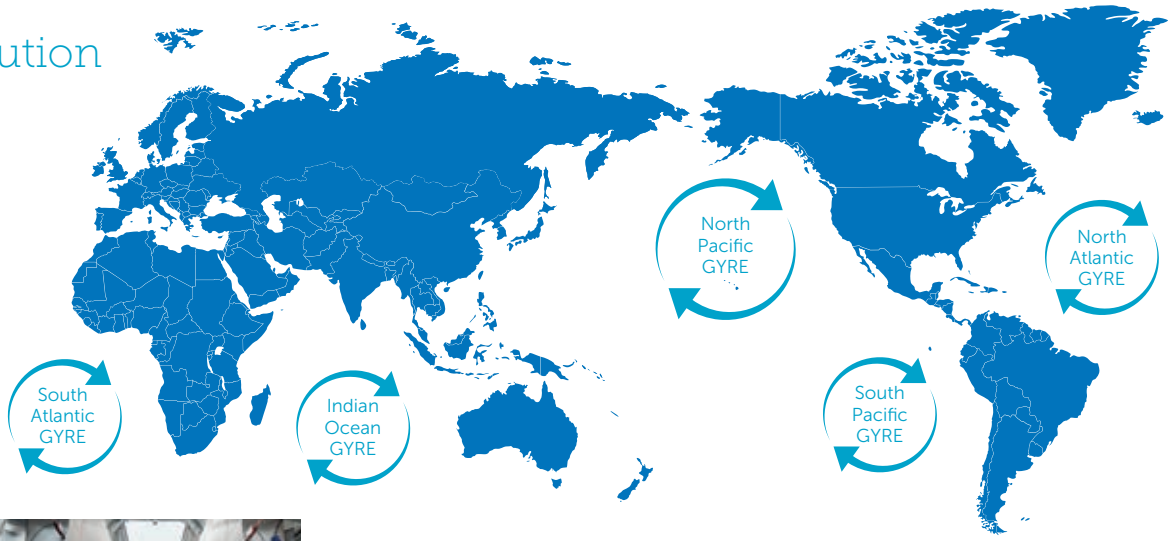
This was a high point for the team, after what had been some challenging moments during the initial 'Ocean' phase of operations. The first 001 system, nicknamed 'Wilson', suffered several major setbacks, including a fracture in January 2019 that meant it had to be towed to Hawaii for repairs. However, the team took these lessons as a 'learning curve', adapting the floating device with every lesson.

Sink or swim

What was the most difficult problem during the project? "There are almost too many moments to choose from," he says. "What we are aiming to do is not easy, but the beginning of last year does stand out as a trying period of time."

This was when Wilson had broken in two, and the team knew that the long-awaited moment of bringing its first plastic catch to land was further away than expected. "Our resilience was definitely tested then," Dubois says. "At the same time, our first Interceptor prototype had been stuck in customs for months, making the moment of first deployment of our river system hard to predict. All in all, these hurdles made the start of 2019 rather tough for all of us."

While some might say that teething problems are inevitable when dealing with new technology, some scientists and journalists criticised



There are five major gyres worldwide, all pulling in ocean plastic

Interceptors have been deployed around the world, including in Klang, Malaysia

the operation, complaining that the media attention was drawing the focus away from better developed solutions.

How did the team deal with these accusations? Dubois takes a scientific approach: "We do take critical input into account in defining our next steps," he says. "Certainly when it is founded in good data, this is invaluable input. The latter does not count for all critical input, however. We make a rational analysis of everything we hear – which is a great mechanism in order to be resilient to unfounded criticism, in our experience."

Going to the source

Does the team ever challenge the industry that actually creates the plastic waste? "While we believe it is important to understand the problem, our efforts and focus stay on the solutions," Dubois says adding, "We think we are at our best when we focus on what we are good at: developing technology. The problem is too complex to point at one original source as the cause of ocean plastic pollution."

Indeed, with the ocean project now a success, it made sense for Slat and the team to concentrate on those sources it is designed to deal with: rivers.

> "Our aim in the river project is to tackle the 1,000 highest-polluting rivers around the world in five years' time from launching the Interceptor"

"Our aim in the river project is to tackle the 1,000 highest-polluting rivers around the world in five years' time from launching the Interceptor," says Dubois.

Four Interceptors have been built to date; two are in operation in Jakarta (Indonesia) and Klang (Malaysia), one is waiting for deployment in Vietnam, and the fourth is being transported to the Dominican Republic. In addition, Thailand has signed up to deploy an Interceptor near Bangkok, as has Los Angeles County, California, kick-starting the programme in the West. "During this crucial testing phase, we focused on specific locations," says Dubois. "Now that we are ready for roll-out, our ambition is, with the help of local governments and operators, to start deploying Interceptors in the most polluting rivers all over the world."

This roll-out is dependent on funding, and Slat does see his mission as a race against time. According to The Ocean Cleanup's research, just 8% of the plastic mass in the Great Pacific garbage patch is currently microplastics – but this will soon change. "What's going to happen over the next few decades is that all the other 92% of plastic will be turned into microplastics as well," Slat has said. "So the sooner we get it out, the better."

The Ocean Cleanup aims to turn the plastic waste it captures into objects that are not single-use. Again, he and his team's faith in technology, and humankind's ability to create solutions, is inspiring.

"Technology is the most potent agent of change. It is an amplifier of our human capabilities", Slat wrote in *The Economist*. It is this message of hope that has caused enviromentalists, scientists and the general public alike to get on board and support this ambitious operation.

IEMA Sustainability Impact Awards 2019
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WINNER

Wilson Power Solutions

Erika Wilson, managing director of the company, talks about the power industry's future and winning IEMA's Award for New Product, Service or Technology

How does Wilson Power Solutions support innovation, and was it a difficult journey to create the e2 Amorphous Transformer?
All companies want to stand out. We chose to be a responsible power engineering company, and decided to do something about transformer energy losses. We have been in the business as a family company for more than 70 years, and we understand how massive the potential is.

We came up with the idea even before the EU decided to regulate transformer losses. The average age of transformers in the UK was a shocking 64 years old, which says much about their efficiency.

Innovation inside Wilson Power is actually a smooth process. As an SME, decision-making is faster than it would be in big companies – but taking this product to the outside world was not easy. Many decision-makers care more about what they pay now than the total cost of ownership. Gradually, we convinced organisations to take a leap of faith; once they installed our transformers, they saw the difference in energy consumption.

What would the energy saving potential of the e2 Amorphous Transformer be if it was taken into widespread use?
Some 2.9% of all energy generated across Europe is wasted through transformer losses – enough to power Denmark for three years!

We launched Wilson e3 just over a year ago and it has even lower losses than Wilson e2. But it's a difficult question, in that we do not know the exact number of transformers in the UK. By our calculations we could be looking at replacing 23,000 UK transformers. Compared against Wilson e3 Ultra Low Loss amorphous transformers, these could collectively save 894.8GWh of electricity every year. Considering the total cost of ownership, that results in more than £83m in savings every year.

How much CO_2 can be saved by using the transformer?
Our latest Wilson e3 transformer exceeds the ECO design directives (Tier 2) that are coming into force in 2021 for transformer losses. We have different scenarios for comparison for the most common rated transformers. This number can stretch to 920 tCO over 30 years if the transformer size is 2.5MVA. There is no easy answer, but you can tell that the scale of carbon reduction is huge.

What makes sustainability important to Wilson Power Solutions as a company?
We are frightened by the impact of climate change and want to do something about it. This is what drives us to become more sustainable as a business and to help other organisations run sustainably, too. Internally, our operations and offices are zero waste-to-landfill, and we have solar panels to run part of our operations, too.

"2.9% of all energy generated across Europe is wasted through transformer losses"

HIGHLIGHTS

- A typical Wilson e2 amorphous transformer can pay back the investment within three years and achieve lifetime savings of over £75,000 in saved electricity.
- An average amorphous transformer saves at least 507 tons of CO_2 emissions over 30 years by reducing energy losses.
- Power transformer losses are responsible for 25% of electrical network losses in the UK. The EC estimates that using more efficient transformers should lead to more than 17% energy savings.

Is sustainability important to your big clients, or is it mainly about cost savings for them?
It became important in recent years. Most big organisations now have sustainability professionals and strategies, but there is still a disconnect between decision-making and purchasing.

Public sector organisations are interested in sustainability but mostly don't have the funds. The Carbon Trust did not include replacing transformers in its Energy Technology List, and there is a lack of incentives from the government to be greener in this aspect.

Private companies are now obliged by regulations and customers to show environmental responsibility. Most realise that the more eco-friendly they are, the lower their energy costs are. Replacing a 1990s transformer with an ultra-low loss one is equivalent to generating energy from 100 solar panels, and is 60% cheaper.

What did you think of last year's awards ceremony?
It was fabulous! Everyone in that room cared about sustainability. There was a great atmosphere, and superb food. We didn't expect to win. We have confidence in our product and we have proved the environmental impact it has had, but it is a rare thing for transformer innovation to be appreciated by other sectors. People don't know much about transformers, they are grey boxes that get tucked away with a "danger" sign. Not as sexy as solar panels or wind turbines!

CONNECT

SOCIAL AND COMMUNITY NEWS FROM IEMA

EVENT

New Zealand: Auckland networking event

On Thursday 20 February, IEMA New Zealand hosted its first monthly networking event, inviting local members to enjoy a social evening with like-minded individuals, share workplace challenges and ideas, and build their network. A total of 28 people attended, with great discussions and lots of positive energy and feedback; several younger attendees asked questions about joining IEMA.

The plan is to hold these IEMA New Zealand Region networking events on alternate months in Auckland, Wellington and Christchurch. Next month's event will be in Wellington, with the following month taking place in Christchurch, before the event comes back to Auckland in May.

Adam Weller,
Chair of IEMA-NZ

NEWS CALL

We want to hear all about members, your activities and achievements. To update your colleagues on events that have taken place and successes to celebrate, submit a 100-word story with photos: **media@iema-transform.com**

DATES FOR YOUR DIARY

iema.net/events

21 APRIL

Circular economy in practice: Circular Public Procurement – case study on Sweden

With procurement featuring among IEMA's list of core ingredients in the transformation to sustainability, we explore how a circular approach to public procurement can be a potential key driver for a transition to a circular economy. Join us for an insight on a Swedish multi-stakeholder project considering the implementation of circular public procurement. The webinar is suitable for anyone working in procurement and sustainability.

To register, go to bit.ly/2UtAdCK

23 APRIL

Pledge to Net Zero: A Guide to Setting a Science-based Target

The UK government has committed to bring GHG emissions to net-zero by 2050, and the environmental sector must lead. This is where Pledge to Net Zero comes in, the UK's industry commitment requiring signatories to tackle greenhouse gas emissions within their organisations via science-based targets. Our first webinar dealt with how to make the pledge. For our second webinar we put the spotlight on three organisations that have made the pledge, exploring the steps they have taken. Special insight is provided by AECOM, LUC and Tony Gee and Partners LLP.

To register, go to bit.ly/2UBoy4W

12 MAY

Environmental management: Update on environmental management systems standards

Following on from Environmental Management 101, IEMA chief policy advisor Martin Baxter hosts this second webinar in the 2020 environmental management webinar series. It will focus on environmental management systems standards.

For more information and to register, go to bit.ly/2QFVgkd

EVENT

Futures vs Fellows: Disruptive technology

A recent IEMA Futures event saw a panel discuss how innovative new technology could be applied within the sustainability sphere. IEMA Futures chair ***Hannah Lesbirel*** reports.

On 18 February, IEMA Futures met the Fellows network for the first Futures vs Fellows event, to discuss the role of disruptive technology in climate action.

A panel of environment and sustainability professionals discussed how disruptive technologies can advance our work. The discussion was chaired by the sustainability facilitator, coach, trainer and consultant Penny Walker, who was joined by three panel members: Mike Lachowicz, director at Panagaea Consulting; Elizabeth Ashford, graduate consultant at Arup; and Alex Ward, business portfolio manager at Earth Active.

The discussions looked at disruptive technology from the different perspectives of environment assessment, monitoring and management. The panelists all had different motivations for investigating the topic and shining light on their experiences. Mike, for example, wanted to explore disruptive technology's potential risk to the environment and society, while Elizabeth suggested that this technology needs to be integrated into our working lives, and that the tech we use to tackle climate change does not always need to be complex.

The recent UK storms caused chaos, highlighting the potential for disruptive technology to be used as a direct form of defence against or adaptation to climate change events. On multiple occasions, for example, Tesla vehicles' automatic braking has saved drivers' lives, reacting faster to a falling tree than a human driver could – highlighting the value of automation.

The use of material passports in construction was cited as a potential driver of a circular economy system that would facilitate construction materials being sent for reuse. Material passports could also reduce carbon footprints by reducing the need to transport waste over long distances, lowering demand for the use of virgin materials and driving progression up the waste hierarchy.

> "We will need more best practice guidance if we are to make the most of what it can offer"

The 'B' word – blockchain – was mentioned slightly reluctantly; it was thought that blockchain's vast potential application and benefits, as well as its energy intensiveness, could make it hard for people to understand its successful application. All panelists, however, cited improving accountability, gathering large data sets and refining accuracy as central to driving the climate initiative. For example, improved accountability and transparency could change the way organisations report their impact on the environment, boosting demand for ethical products and investments.

One of the main advantages of disruptive technology highlighted during the event was the ability for it to be used as a communicative tool to enhance our work. Digital report delivery could bridge accessibility gaps, and gathering large amounts of data could make consultation phases more representative. The 'Internet of Things' and remote monitoring devices could be used to engage communities via live web maps, as well as improving the qualitative data we use in decision-making.

We concluded that the industry is going through a transitional phase, learning about emerging technology and how to integrate it into our professions. Widespread application of its use in this sector is still lacking, and we will need more best practice guidance and encouragement if we are to make the most of what it can offer. We must note that just because we don't see a particular technology as disruptive now, that does not mean it never was or couldn't be.

Behaviour change is a major requirement for the successful implementation of disruptive technologies; as Mike said, "those of Futures age should be actively promoting disruptive tech to those of Fellows age and helping them understand the benefits". Sharing application ideas, lessons learnt and successes among and between our organisations is key, and this event provided a platform to begin that knowledge transfer.

Visit www.iema-transform.net for more member profiles

Daan Elffers

FIEMA

CSR expert and senior sustainability advisor, founder of EMG and the Islamic Reporting Initiative

What was your first job in this field?

I started the EMG Group 15 years ago at the age of 24. Having received my Master's degree from the Rotterdam School of Management at Erasmus, I was presented with the opportunity to work with a corporate client, an international B2B company whose core strategic objective involved sustainability. Through them, I not only became aware of the importance of the application of cradle-to-cradle strategies, but realised the rising global importance of sustainability principles and policies. At the same time, the team was working on a global NGO project involving environmental stewardship. Fundamentally impacted by seeing how much good could be done when ethical principles were integrated into business practice, I decided to make sustainability and CSR our core focus.

EMG completed a training course with the EPEA in Hamburg and subsequently became one of the world's first Cradle to Cradle Certified consultants. We have since maintained close ties with Cradle to Cradle co-founder Prof. Dr Michael Braungart, who has recently become a member of our Advisory Board. I can unequivocally say that Cradle to Cradle ideas and the principles behind the circular economy shape how we do business.

How has your role changed/progressed over the past few years?

Ten years into our development, we increasingly began to focus on international work and diversified our client base. As a registered supplier to the United Nations and participating in international projects in the Middle East and Asia, we were often asked to implement sustainability practices/policies in a manner that was sensitive to Islamic values, especially in terms of reporting.

Initial research into more than 200 companies made us aware of the great potential of Islamic values in relation to implementing sustainability across a full quarter of the world's countries. Eager to turn this potential into concrete practice, we donated more than 250,000 euros to create the world's first reporting standard for sustainability that recognised the relevance of Islamic values to sustainability issues.

Now with members in more than 50 countries, the award-winning Islamic Reporting Initiative has become pivotal to EMG's work.

> "Brainstorm until you discover your life's passion, a cause that will get you up early and keep you up late"

Where would you like to be in five years' time?

Always seeking ways to make a meaningful impact, I was presented a few years ago with another opportunity to realise this ambition. While living in Cambridge, I met a physicist from Kazakhstan, who had discovered a unique algorithm that handles data in a completely new way, with the potential to revolutionise data storage.

Data storage is a very hot issue, especially in terms of its climate impact. The growth of technology and data usage has led to a greater demand for data centres, and today they are responsible for 2% of global greenhouse gas emissions, about the same amount as air travel. It is predicted that, within next 5 years, data centres could consume one fifth of the world's electricity!

Maximising the potential of that algorithm has the capacity to significantly optimize energy consumption, and also to lower electromagnetic field radiation (for example from Wi-Fi, or 5G) by more than 2000 times. We've joined forces, and are now in the process of marketing this potentially 'disruptive' technology — turning it into a force for good.

What advice would you give to someone entering the profession?

"Panic. Our house is on fire."

Learn everything you can about systems thinking until you see that one person can make a tremendous difference. Read *Cradle to Cradle – Remaking The Way We Make Things*. Brainstorm until you discover your life's passion, a cause that will get you up early and keep you up late at night. Write down your long-term goals, break them down into short-term action points. Think big and aim high. Identify and connect with strategic partners. Take time to reflect, be open to change, but keep moving forward. Be the best you can be. There is no time to waste.

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